

Appl. No. 10/642,856  
Amdt. dated 9/19/06  
Reply to Office action of 6/19/06

SPECIFICATION AMENDMENTS

Please replace the paragraph beginning at page 2, line 4, with the following amended paragraph:

U.S. Patent No. 3,375,503 describes a word-organized magnetic thin-film memory. Figs. 1 and 2A-2B 2 of this document show a memory cell containing magnetostatically coupled magnetic thin films constructed in such a way that they form a magnetically closed magnetic circuit and their easy magnetization direction is oriented parallel to one another. In accordance with Fig. 3 of this document, the word lines are led in the direction of the easy magnetization axis specified by the vector 118, while the bit lines run perpendicular thereto, that is to say in the hard magnetization direction (vector 112). In the absence of external magnetization, the remanent magnetization of the two magnetic thin films is oriented in the easy magnetization direction. In accordance with Fig. 4 of the document, first a positive pulse on a word line (Right "1") causes all the bits present on the word line to be rotated in the hard magnetization direction 112, that is to say through 90° with respect to the easy magnetization direction 118. Both magnetic thin films are influenced in this case. Before the end of the positive current pulse, a positive bit pulse is then passed on to the selected bit sense line and the current

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pulse on the word line is ended before the bit pulse is ended. By this measure, the magnetization vector of both magnetic films is rotated in the direction desired for writing a "1", that is to say in the easy magnetization direction. Thus, the driving method which is described in this document and is shown in Fig. 4 thereof does not differ from the driving methods that are generally customary for magnetic thin-film memories. This is because the purpose of delaying the bit pulse with respect to the word pulse is that, at the beginning of the word pulse, the read current on the bit line simultaneously serving as sense line can be detected by a sense amplifier provided for this and that the information, which, under certain circumstances, is destroyed by the word line pulse, is written back to the memory cell again immediately afterwards. Consequently, although the document describes a driving method by which the write currents are impressed on the respective word line and bit line in a temporally offset manner, so that the magnetization direction of the selected memory cell is rotated in precisely two successive steps in the direction desired for writing a logic "0" or "1", this document in no way describes a method for writing to magnetoresistive memory cells of an MRAM memory in which the memory cells are formed from a multilayer system containing the stacking one above the other of a soft-

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magnetic and hard-magnetic material between which a tunnel oxide is situated.

Please replace the paragraph beginning at page 13, line 19, with the following amended paragraph:

The right-hand half of Fig. 4 shows, in the same way, steps a' - h' of the temporal sequence of the currents  $I_{WL}$  and  $I_{BL}$  for writing a logic "0" to an MRAM memory cell MTJ. It is evident that, between the instants  $\pm \underline{c'}$  and h', the bit line current  $I_{BL}$  flows in the opposite direction through the bit line BL.